FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

2 to 8 February, 2014 (Week 06)

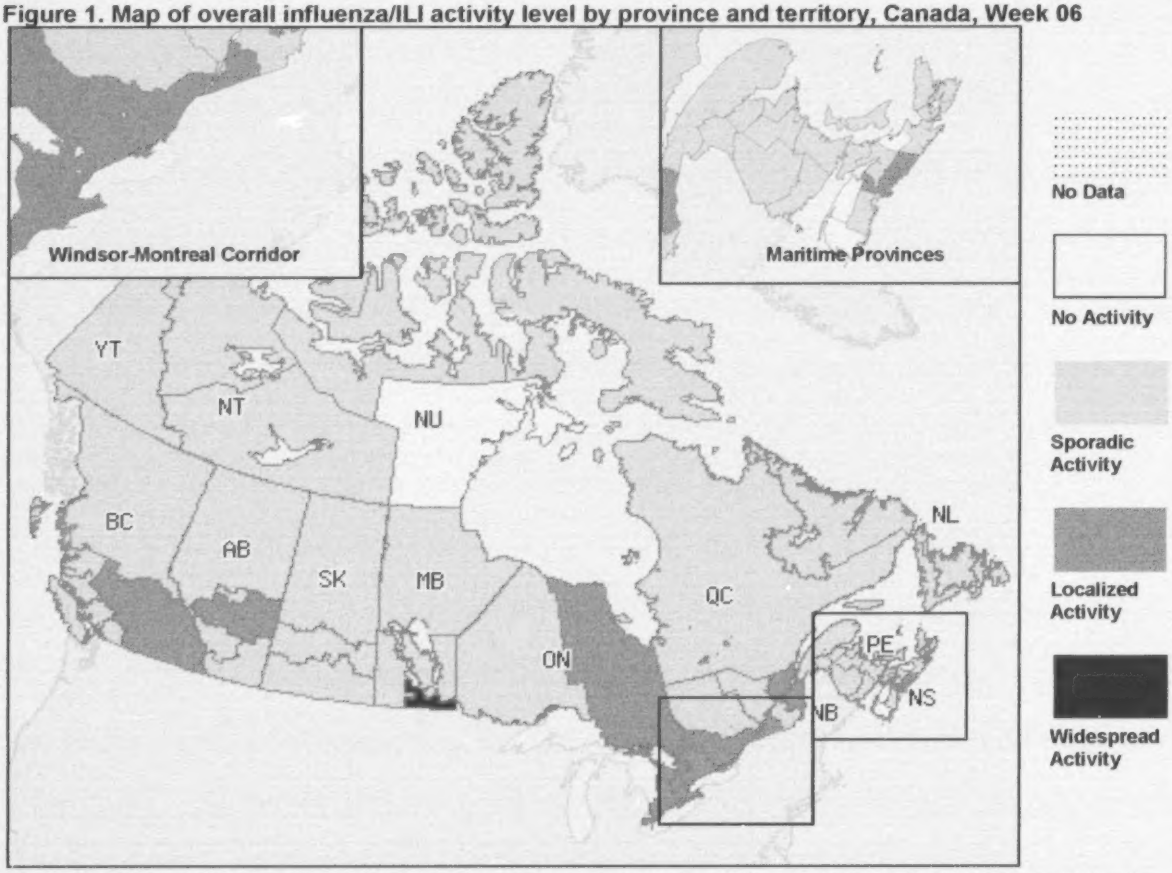
Overall Summary

- In week 06, overall influenza activity continued to decrease in Canada, with the exception of ongoing activity in the more eastern provinces which experienced a later start to the influenza season.
- The influenza A(H1N1) virus remains the most common influenza virus circulating this season although influenza B virus detections continue to increase.
- Adults 20-64 years of age continue to be more affected by influenza this season.
- To week 06, 2,818 hospitalizations have been reported, which is slightly lower compared to the same period last season. One hundred and forty-three deaths have been reported.
- Overall influenza activity in Canada during the 2013-14 season has been similar to the 2012-13 season and is within expected levels for this time of year.

Influenza/ILI Activity (geographic spread)

In week 06, one region in Manitoba reported widespread activity, and 11 regions (in BC(1), AB(1), ON(6), QC(2) and NS(1)) reported localized activity (Figure 1). Influenza activity levels are declining, with fewer regions reporting widespread or localized activity.

Figure 1. Map of overall influenza/ILI activity level by province and territory, Canada, Week 06

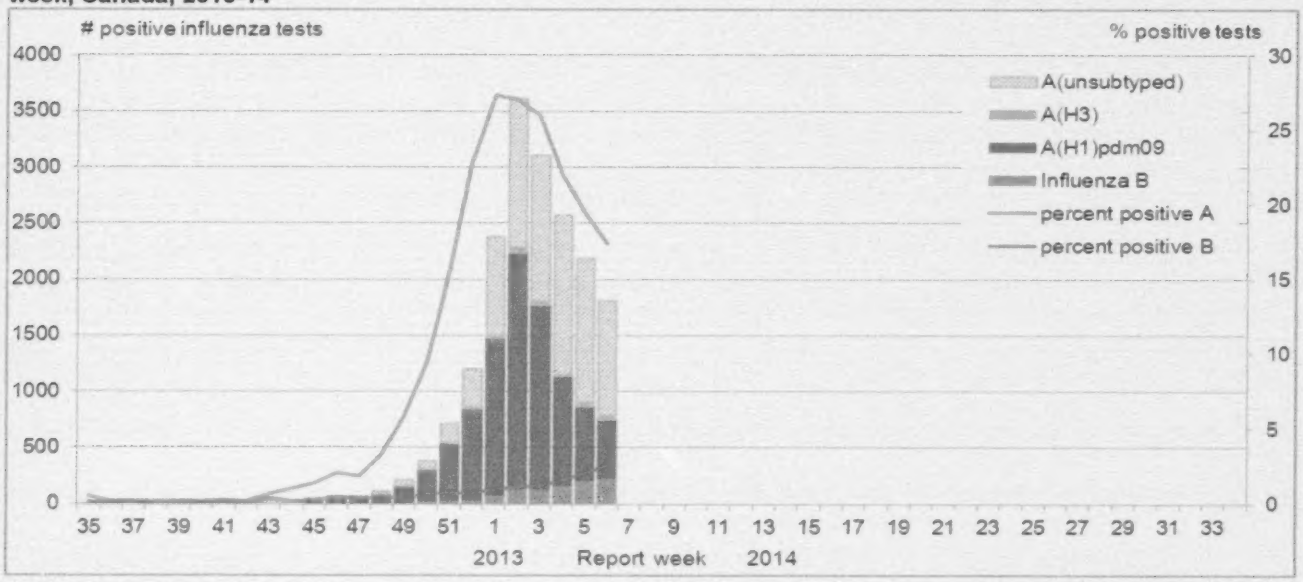


Note: Influenza/ILI activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates and reported outbreaks. Please refer to detailed definitions at the end of the report. Maps from previous weeks, including any retrospective updates, are available on the FluWatch website.

Influenza and Other Respiratory Virus Detections

The number of positive influenza tests continued to decrease, from 2,183 in week 05 to 1,811 in week 06. The percentage of positive influenza tests decreased from 21.5% to 20.0% (Figure 2). Cumulative influenza virus detections to date remain predominantly influenza A (94%), and among those subtyped, 97% (9,203/9,505) were A(H1N1)pdm09. However, the percentage of positive tests for influenza B has been rising slowly in recent weeks to 12.8% of influenza detections in week 06 (Table 1). Among the 15,051 cases for which information on age and type/subtype has been received this season, 56.9% were 20-64 years of age and 15.6% were ≥65 years of age, which is different from the proportions observed during the 2012-13 season when 33.1% of cases were 20-64 years of age and 41.2% were ≥65 years of age (Table 2).

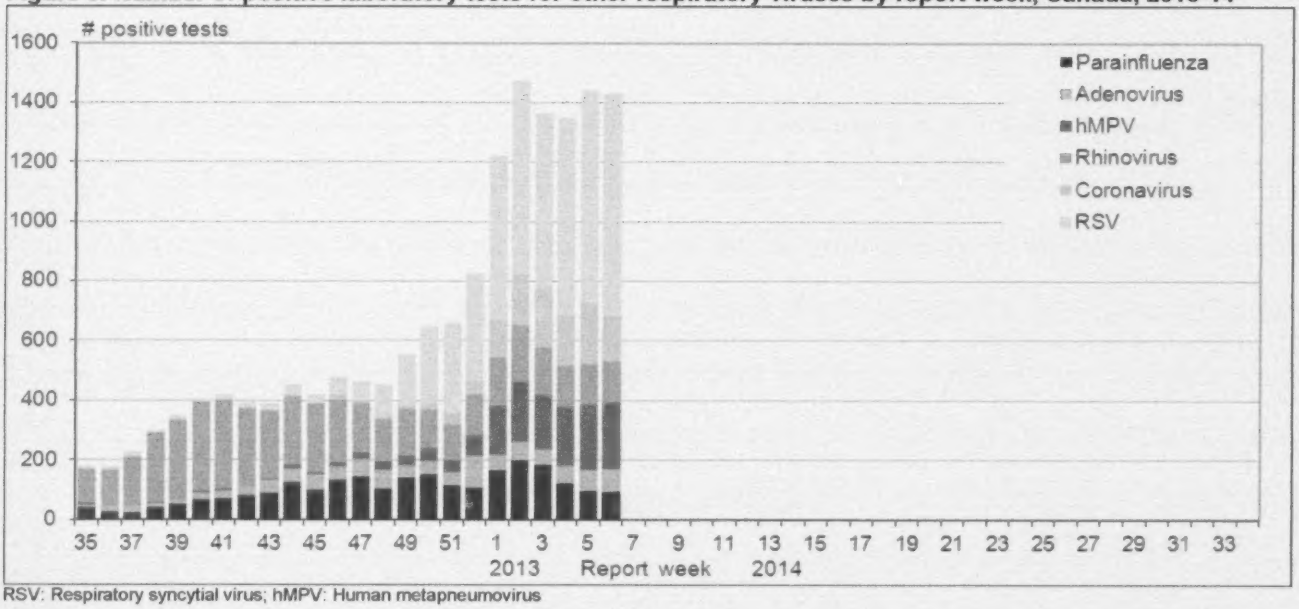
Figure 2. Number of positive influenza tests and percentage of tests positive, by type, subtype and report week, Canada, 2013-14



The number of positive tests for RSV continued the gradual increase observed since late November 2013. The percentage of the total number of tests that were positive has fluctuated during this period, but increased during the past three weeks. RSV in Canada shows a seasonal pattern with a broad peak over the winter months. The number of positive tests for other respiratory viruses has been relatively stable in recent weeks (Figure 3).

For more details, see the weekly Respiratory Virus Detections in Canada Report.

Figure 3. Number of positive laboratory tests for other respiratory viruses by report week, Canada, 2013-14



RSV: Respiratory syncytial virus; hMPV: Human metapneumovirus

Table 1. Weekly and cumulative numbers of positive influenza specimens by type, subtype and province, Canada, 2013-14

Reporting provinces[1]	Weekly (February 2 to 8, 2014)					Cumulative (August 25, 2013 to February 8, 2014)				
	Influenza A				B	Influenza A				B
	A Total	A(H1)pdm09	A(H3)	A(UnS)	B Total	A Total	A(H1)pdm09	A(H3)	A(UnS)	B Total
BC	123	100	11	12	8	1562	1436	54	72	52
AB	127	86	3	38	16	3394	3186	36	172	74
SK	77	57	1	19	6	1254	905	3	346	16
MB	55	43	0	12	0	473	319	1	153	13
ON	356	104	15	237	60	4922	2198	200	2524	170
QC	625	88	0	537	130	4024	537	3	3484	710
NB	141	0	0	141	2	1298	364	1	933	6
NS	14	13	0	1	1	100	76	4	20	1
PE	30	30	0	0	0	78	78	0	0	0
NL	32	0	0	32	8	290	104	0	186	107
Canada	**1580**	**521**	**30**	**1029**	**231**	**17395**	**9203**	**302**	**7890**	**1149**
Percentage[2]	87.2%	33.0%	1.9%	65.1%	12.8%	93.8%	52.9%	1.7%	45.4%	6.2%

Table 2. Weekly and cumulative numbers of positive influenza specimens by type, subtype and age-group reported through case-based laboratory reporting[3], Canada, 2013-14

Age groups (years)	Weekly (February 2 to 8, 2014)					Cumulative (August 25, 2013 to February 8, 2014)						
	Influenza A				B	Influenza A				B	Influenza A and B	
	A Total	A(H1) pdm09	A(H3)	A (UnS)	Total	A Total	A(H1) pdm09	A(H3)	A (UnS)	Total	#	%
<5	185	52	0	133	17	2617	1226	20	1371	124	2741	18.2%
5-19	77	17	0	60	38	1104	614	16	474	178	1282	8.5%
20-44	229	71	1	157	33	4329	2421	26	1882	206	4535	30.1%
45-64	232	74	4	154	40	3742	2068	36	1638	289	4031	26.8%
65+	147	39	4	104	39	1960	817	78	1065	390	2350	15.6%
Unknown	9	7	0	2	0	112	95	7	10	0	112	0.7%
Total	879	260	9	610	167	13864	7241	183	6440	1,187	15051	100.0%
Percentage[2]	84.0%	29.6%	1.0%	69.4%	16.0%	92.1%	52.2%	1.3%	46.5%	7.9%		

[1] Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Cumulative data includes updates to previous weeks.
[2] Percentage of tests positive for sub-types of influenza A are a percentage of all influenza A detections.
[3] Table 2 includes specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported.
UnS: unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available.

Influenza Strain Characterizations

During the 2013-2014 influenza season, the National Microbiology Laboratory (NML) has antigenically characterized 894 influenza viruses [48 A(H3N2), 755 A(H1N1)pdm09 and 91 influenza B]. The vast majority (99%) of viruses were similar to the strains recommended by the WHO for the 2013-14 seasonal influenza vaccine. Two A(H1N1)pdm09 viruses showed reduced titres to antiserum against the reference A/California/07/2009 strain. Nine influenza B viruses were similar to the strain recommended by the WHO for the 2011-12 vaccine (Figure 4).

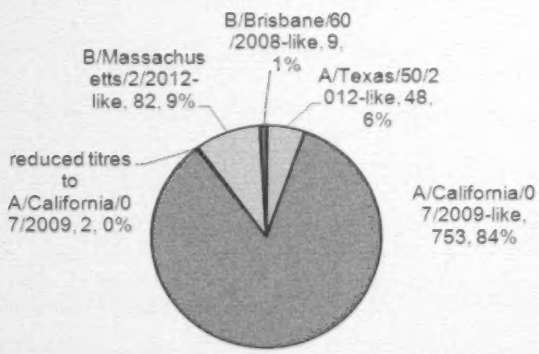


Figure 4. Influenza strain characterizations, Canada, 2013-14, N = 894

The NML receives a proportion of the number of influenza positive specimens from provincial laboratories for strain characterization and antiviral resistance testing. Characterization data reflect the results of haemagglutination inhibition (HAI) testing compared to the reference influenza strains recommended by WHO.

The recommended components for the 2013-2014 northern hemisphere trivalent influenza vaccine include: an A/California/7/2009(H1N1)pdm09-like virus, an A(H3N2) virus antigenically like the cell-propagated prototype virus A/Victoria/361/2011b (e.g. A/Texas/50/2012), and a B/Massachusetts/2/2012-like virus (Yamagata lineage).

Antiviral Resistance

During the 2013-2014 influenza season, NML has tested 561 influenza viruses for resistance to oseltamivir and 552 viruses for resistance to zanamivir, and all were sensitive. All 549 influenza A viruses tested for amantadine resistance were resistant (Table 3).

Table 3. Antiviral resistance by influenza virus type and subtype, Canada, 2013-14

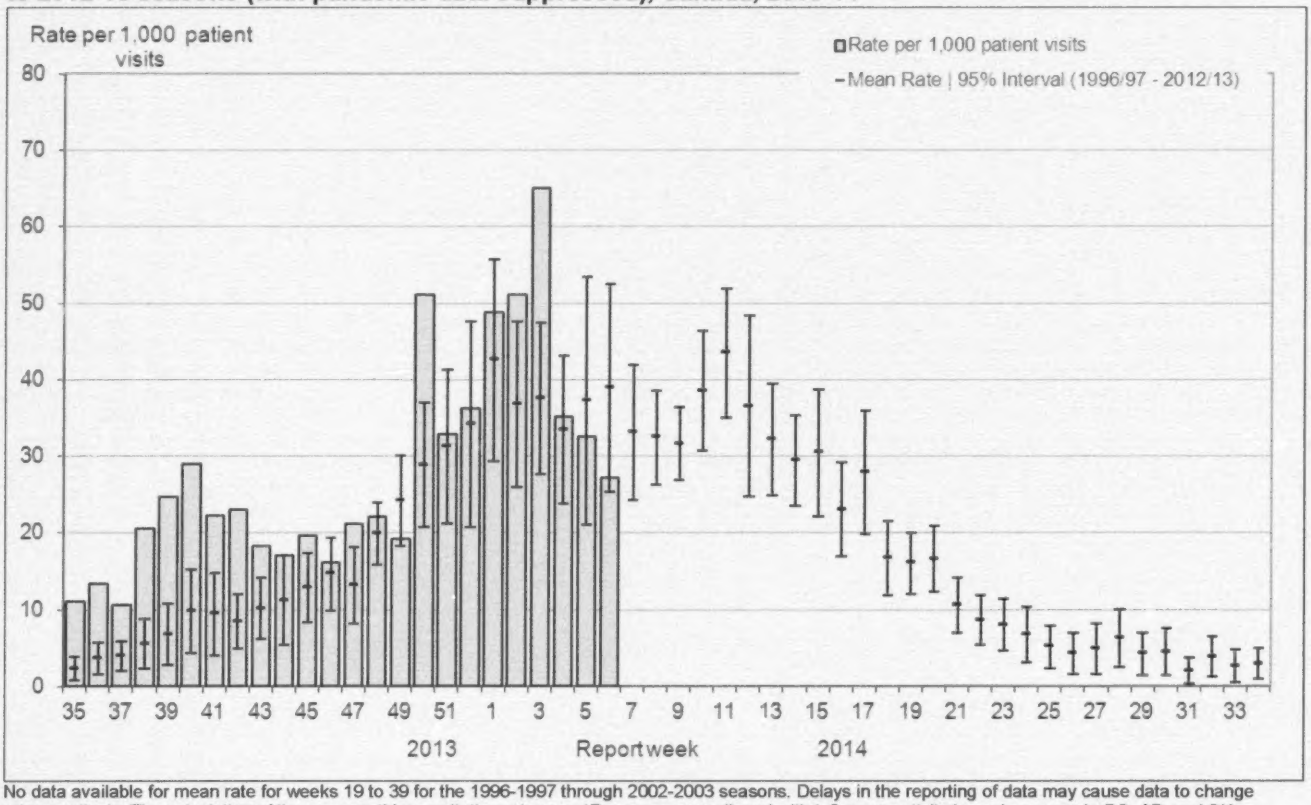
Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	41	0	41	0	53	53 (100%)
A (H1N1)	472	0	463	0	496	496 (100%)
B	48	0	48	0	NA[1]	NA[1]
TOTAL	561	0	552	0	549	549 (100%)

[1] NA – not applicable

Influenza-like Illness Consultation Rate

The national influenza-like-illness (ILI) consultation rate continued to decrease from 32.5/1,000 in week 05 to 27.2/1,000 in week 06; which is within the expected range for week 06 (Figure 5).

Figure 5. Influenza-like-illness (ILI) consultation rates by report week, compared to the 1996-97 through to 2012-13 seasons (with pandemic data suppressed), Canada, 2013-14

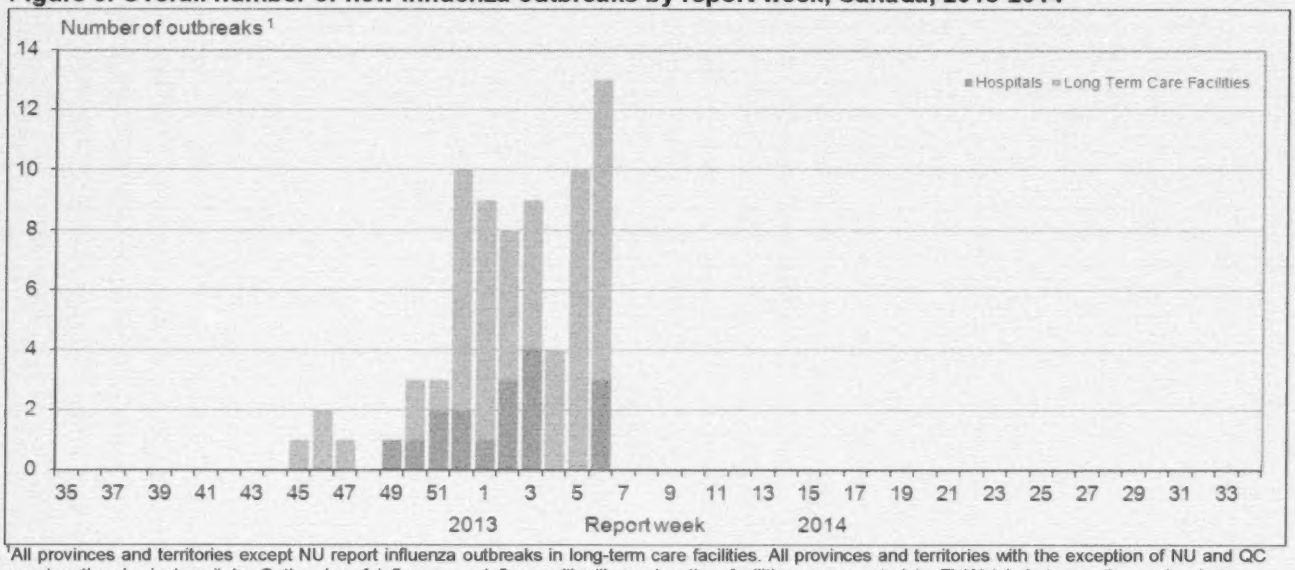


No data available for mean rate for weeks 19 to 39 for the 1996-1997 through 2002-2003 seasons. Delays in the reporting of data may cause data to change retrospectively. The calculation of the average ILI consultation rate over 17 seasons was aligned with influenza activity in each season. In BC, AB, and SK, data is compiled by a provincial sentinel surveillance program for reporting to FluWatch. The number of sentinel physicians in each province or territory is as follows: BC(21), AB(80), SK(11), MB(18), ON(169), QC(14), NB(29), NS(26), PE(4), NL(16), NU(1), NT(14), YT(13). Not all sentinel physicians report every week.

Influenza Outbreak Surveillance

In week 06, 13 new influenza outbreaks were reported: three in hospitals and 10 in long-term care facilities (Figure 6). In addition, six outbreaks of influenza-like-illness were reported: one in a school and five in other facilities or communities.

Figure 6. Overall number of new influenza outbreaks by report week, Canada, 2013-2014

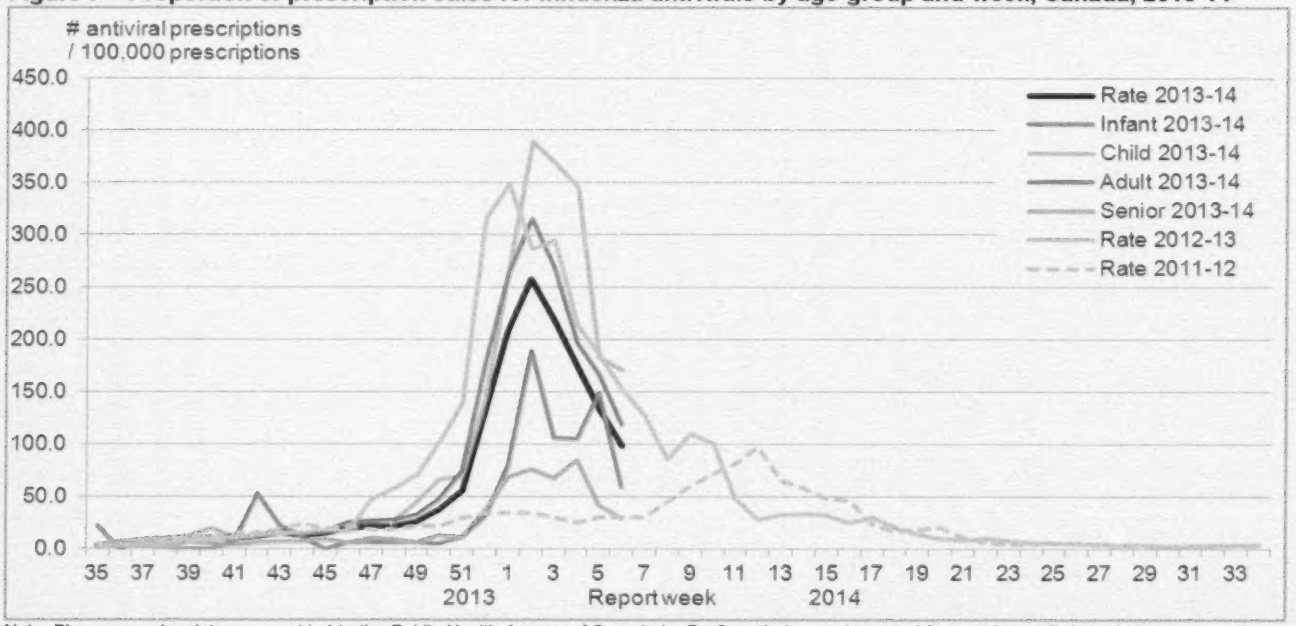


[1]All provinces and territories except NU report influenza outbreaks in long-term care facilities. All provinces and territories with the exception of NU and QC report outbreaks in hospitals. Outbreaks of influenza or influenza-like-illness in other facilities are reported to FluWatch but reporting varies between jurisdictions. Outbreak definitions are included at the end of the report.

Pharmacy Surveillance

In week 06, the proportion of prescriptions for influenza antivirals continued to decrease for all age groups, following the downward trend in laboratory detections of influenza. The largest proportion of prescriptions for antivirals continued to be among children 2-18 years of age followed by adults 19-64 years of age (Figure 7).

Figure 7 – Proportion of prescription sales for influenza antivirals by age-group and week, Canada, 2013-14



Note: Pharmacy sales data are provided to the Public Health Agency of Canada by Rx Canada Inc. and sourced from major retail drug chains representing over 2,500 stores nationwide (excluding Nunavut) in 85% of Health Regions. Data provided include the number of new antiviral prescriptions (for Tamiflu and Relenza) and the total number of new prescriptions dispensed by Province/Territory and age group. Age-groups: Infant: 0-2y, Child: 2-18y; Adult: 19-64y, Senior: ≥65y

Sentinel Hospital Influenza Surveillance

Paediatric Influenza Hospitalizations and Deaths (IMPACT)

In week 06, 32 new laboratory-confirmed influenza-associated paediatric (≤16 years of age) hospitalizations were reported by the Immunization Monitoring Program Active (IMPACT) network, compared to 55 in week 05, indicating that the number of new cases may be starting to decline. In week 06, influenza A was reported in 28 cases and influenza B in four cases (Figure 8a). Twenty-two (69%) of the cases were <5 years of age. Four ICU admissions were reported in week 06, one child under 6 months of age, one 6-23 months of age, one 2-4 years of age, and one 5-9 years of age; all with influenza A. No deaths were reported.

To date this season, a total of 450 influenza-associated paediatric hospitalizations have been reported by the IMPACT network, 95% of which have been influenza A, and almost all of those subtyped were A(H1N1)pdm09. Children under 5 years of age represent 77.8% of cases to date (Table 4). Sixty-eight ICU admissions have been reported; all but three cases with influenza A (the majority A(H1N1)pdm09), and 29 (43%) among children under 2 years of age (Figure 9a). Among the 56 ICU cases with available data, 38 (68%) were reported to have underlying medical conditions. No deaths have been reported.

Note: The number of hospitalizations reported through IMPACT represents a subset of all influenza-associated paediatric hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Adult Influenza Hospitalizations and Deaths (PCIRN)

In week 06, 40 new laboratory-confirmed influenza-associated adult (≥16 years of age) hospitalizations reported through active surveillance by the PHAC/CIHR Influenza Research Network (PCIRN) Serious Outcomes Surveillance (SOS) network, compared to 52 in week 05. There has been a steady decline in the number of new cases over recent weeks. Among cases in week 06, 35 (87.5%) were influenza A, of which two were A(H1N1)pdm09 and 33 were A(unsubtyped). Four cases with influenza B and one case without information on the influenza type were reported (Figure 8b). The majority of hospitalizations occurred among adults ≥45 years of age (30; 75%). Three ICU admissions were reported in week 06: one case <20 years of age, one case 45-64 years of age and one case ≥65 years of age. No deaths were reported in week 06.

To date this season, 887 influenza-associated hospitalizations have been reported by the PCIRN-SOS network, 851 (95.9%) with influenza A, predominantly A(H1N1)pdm09 (Table 5). ICU admission was required for 155 hospitalizations, all but five of which were cases with influenza A. More than three quarters of hospitalizations and approximately 80% of ICU admissions were ≥45 years of age. Of the 134 ICU admissions with available information, 86.6% (116/134) were reported to have at least one comorbidity. Of the 133 ICU admissions with information on influenza vaccination, 97 (72.9%) reported not having been vaccinated this season. Forty-three deaths have been reported, all with influenza A (26 A(H1N1)pdm09, one A(H3N2) and 13 A(unsubtyped)); five cases 20-44 years of age, 23 cases 45-64 years of age and 15 cases ≥65 years of age (Figure 9b).

Note: PCIRN-SOS conducted passive surveillance from April 30th to November 14th, 2013. Cases reported during this period were identified by laboratory detection of influenza among patients admitted to participating hospitals. Active surveillance began November 15th during which time PCIRN site coordinators investigate cases potentially related to influenza. Data from both active and passive surveillance reported during the 2013-14 season are included in this report. The number of hospitalizations reported through PCIRN represents a subset of all influenza-associated adult hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Table 4 – Cumulative numbers of paediatric hospitalizations with influenza reported by the IMPACT network, Canada, 2013-14

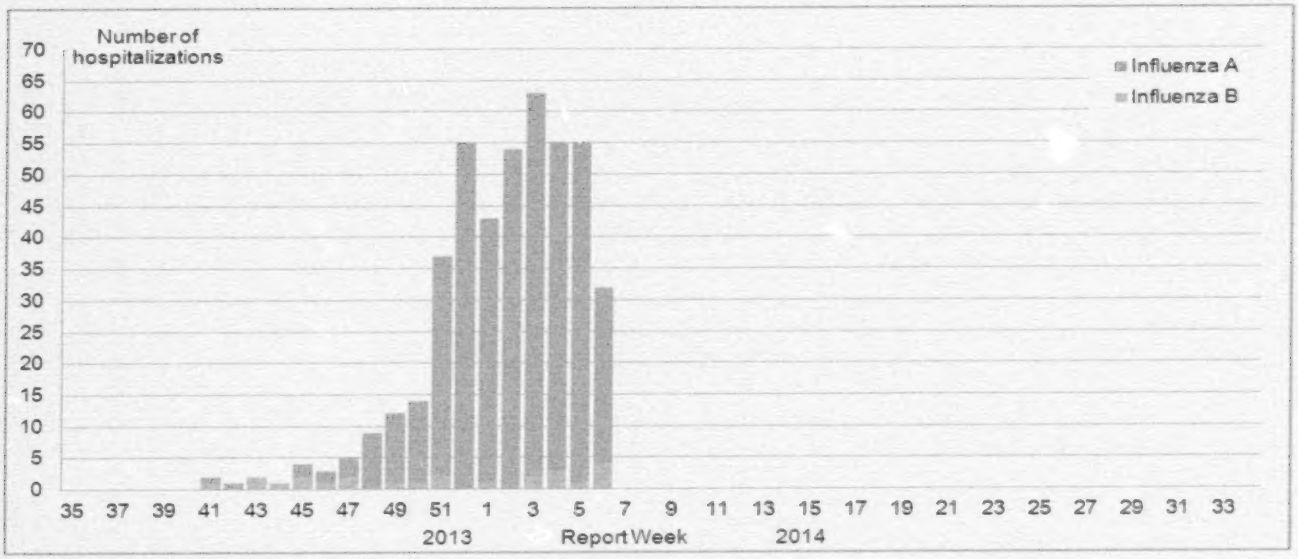
Age groups	Cumulative (25 Aug. 2013 to 8 Feb. 2014)					
	Influenza A				B	Influenza A and B
	A Total	A(H1) pdm09	A(H3)	A (UnS)	Total	# (%)
0-5m	83	23	0	60	2	85 (19%)
6-23m	127	38	1	88	4	131 (29%)
2-4y	125	43	2	80	9	134 (30%)
5-9y	64	18	0	46	7	71 (16%)
10-16y	27	11	0	16	2	29 (6%)
Total	426	133	3	290	24	450
% [1]	94.7%	31.2%	0.7%	68.1%	5.3%	100.0%

Table 5 – Cumulative numbers of adult hospitalizations with influenza reported by the PCIRN-SOS network, Canada, 2013-14

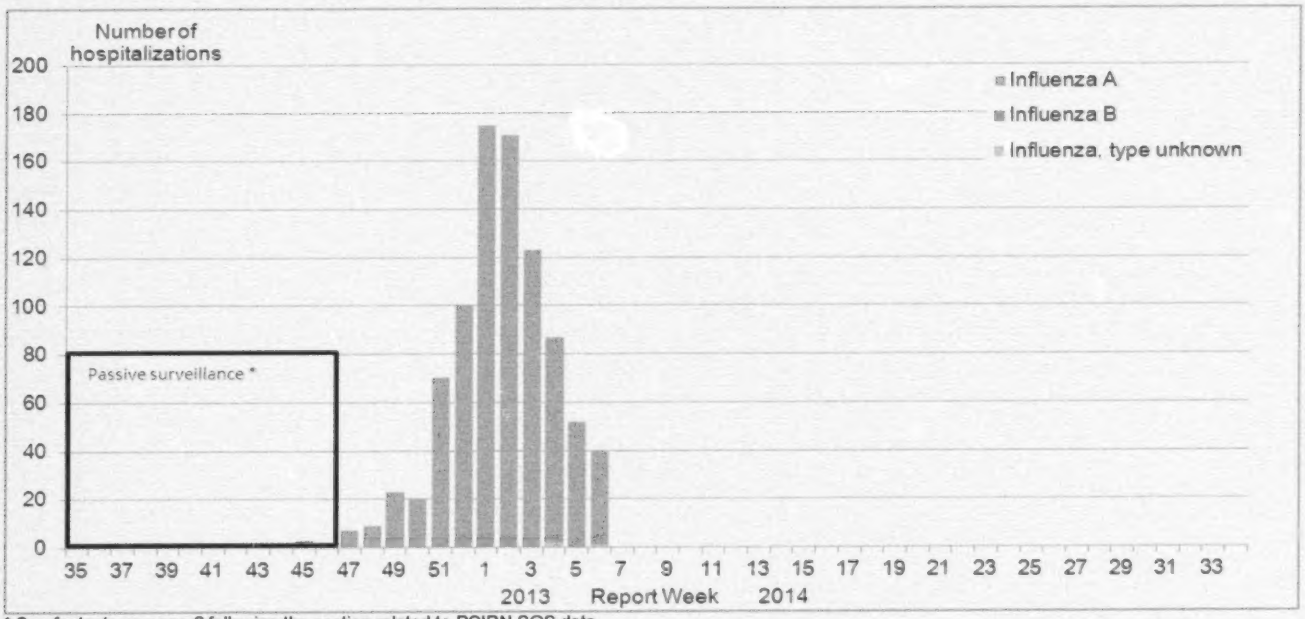
Age groups (years)	Cumulative (25 Aug. 2013 to 8 Feb. 2014) *					
	Influenza A				B	Influenza A and B
	A Total	A(H1) pdm09	A(H3)	A(UnS)	Total	# (%)
16-20	7	3	0	4	1	8 (1%)
20-44	191	105	2	84	2	193 (22%)
45-64	339	157	3	179	5	344 (39%)
65+	309	159	15	135	25	334 (38%)
Total	846	424	20	402	33	879
% [1]	96%	50%	2%	48%	4%	100%

[1] Percentage of tests positive for sub-types of influenza A are a percentage of all influenza A detections. UnS: unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available. * Three cases for which the influenza type has not yet been reported, and five cases for which the age-group was not reported, are not included in Table 5.

Figure 8 – Number of cases of influenza reported by sentinel hospital networks, by week, Canada, 2013-14
A) Paediatric hospitalizations (≤16 years of age, IMPACT)



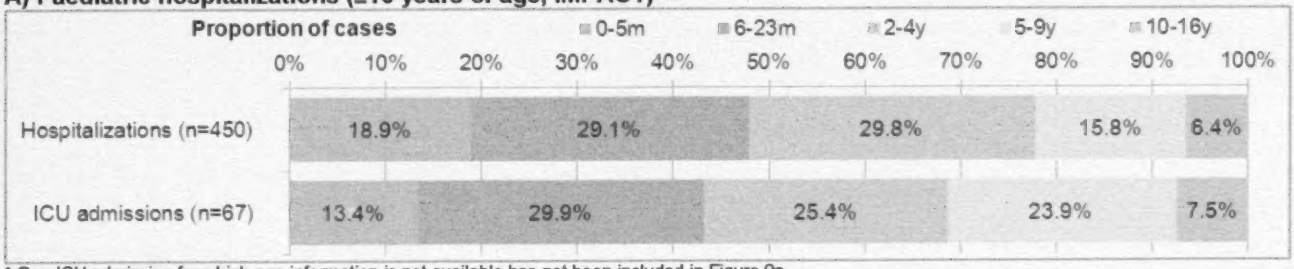
B) Adult hospitalizations (≥16 year of age, PCIRN-SOS)



* See footnote on page 6 following the section related to PCIRN-SOS data.

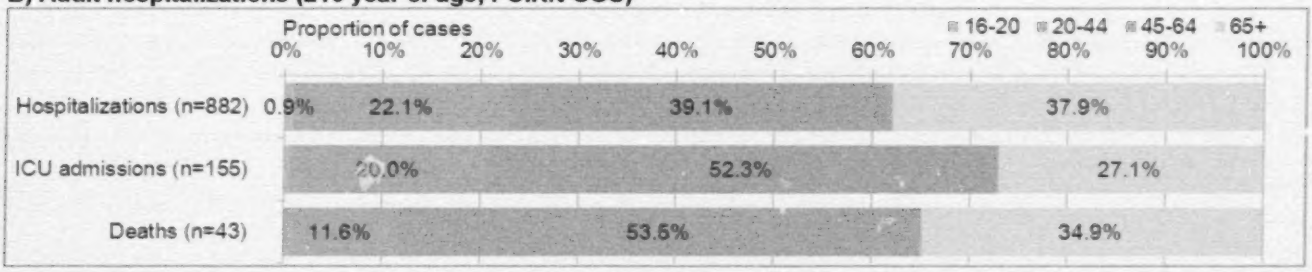
Figure 9 – Percentage of hospitalizations, ICU admissions and deaths with influenza reported by age-group, Canada, 2013-14

A) Paediatric hospitalizations (≤16 years of age, IMPACT)



* One ICU admission for which age information is not available has not been included in Figure 9a.

B) Adult hospitalizations (≥16 year of age, PCIRN-SOS)



Provincial/Territorial Influenza Hospitalizations and Deaths

In week 06, 208 laboratory-confirmed influenza-associated hospitalizations were reported from participating provinces and territories.* The majority were cases of influenza A (198, 95.2%), of which 96 (48.5%) were A(H1N1)pdm09, 8 (4.0%) were A(H3N2), and 94 (47.5%) were A(unsubtyped). Among the 12 ICU admissions reported in week 06, the majority (7, 58.3%) were adults 20-64 years of age. Fourteen deaths were reported, over half of which were adults 20-64 years of age. The number of new influenza-associated hospitalizations and deaths reported for the current week may include cases from Ontario that occurred in previous weeks, as a result of retrospective updates to the cumulative total.

To date this season, 2,818 influenza-associated hospitalizations have been reported, 97.4% with influenza A. The majority (57.7%) of hospitalizations have been cases 45 years of age of older (Table 6). A total of 277 ICU admissions have been reported this season, and 70.4% were among adults 20-64 years of age. A total of 143 deaths have been reported. The highest proportion of deaths has been among adults 20-64 years of age (55.9%), followed by adults ≥65 years of age (35.7%). Influenza B has been detected infrequently among severe cases of influenza to date this season: in only 2.6% of hospitalizations, 1.1% of ICU admissions, and 1.4% of deaths. It is important to note that the hospitalization or death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting. Detailed clinical information (e.g. underlying medical conditions) is not known for these cases.

* Note: Influenza-associated hospitalizations are not reported to PHAC by the following Provinces and Territory: BC, NU, QC, and NB. Only hospitalizations that require intensive medical care are reported by Saskatchewan. ICU admissions are not distinguished among hospital admissions reported from Ontario. Data may also include cases reported by the IMPACT and PCIRN networks.

Table 6 – Cumulative number of hospitalizations with influenza reported by the participating provinces and territories, Canada, 2013-14

Age groups (years)	Cumulative (25 Aug. 2013 to 8 Feb. 2014) *					
	Influenza A				B	Influenza A and B
	A Total	A(H1) pdm09	A(H3)	A (UnS)	Total	# (%)
0-4	466	239	6	221	16	482 (18%)
5-14	104	56	5	43	8	112 (4%)
15-19	27	16	2	9	1	28 (1%)
20-44	488	357	3	128	4	492 (18%)
45-64	887	586	16	285	11	898 (33%)
65+	697	384	44	269	32	729 (27%)
Total	2669	1638	76	955	72	2741
Percentage[1]	97.4%	61.4%	2.8%	35.8%	2.6%	100%

[1] Percentage of tests positive for sub-types of influenza A are a percentage of all influenza A detections.
UnS: unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available.
* Seventy-seven cases for which age information is not available have not been included in Table 6.

See additional data on Reported Influenza Hospitalizations and Deaths in Canada: 2009-10 to 2013-14 on the Public Health Agency of Canada website.

Emerging Respiratory Pathogens

Human Avian Influenza

Influenza A(H7N9): Thirty new cases of human infection with influenza A(H7N9), and three deaths, have been reported by the World Health Organization since the last FluWatch report. Globally to February 13, 2014, the WHO has been informed of a total of 338 laboratory-confirmed human cases with avian influenza A(H7N9) virus, including 66 deaths.

PHAC – Avian influenza A(H7N9)
WHO – Avian Influenza A(H7N9)

Middle East Respiratory Syndrome Coronavirus (MERS-CoV)

No new laboratory-confirmed cases of MERS-CoV have been reported by the World Health Organization since the last FluWatch report. Globally, from September 2012 to date, the WHO has been informed of a total of 182 laboratory-confirmed cases of infection with MERS-CoV, including 79 deaths. All cases have either occurred in the Middle East or have had direct links to a primary case infected in the Middle East.

PHAC – Middle East respiratory syndrome coronavirus (MERS-CoV)
WHO – Coronavirus infections

International Influenza Reports

World Health Organization influenza update

World Health Organization FluNet

WHO Influenza at the human-animal interface

Centers for Disease Control and Prevention seasonal influenza report

EuroFlu weekly electronic bulletin

European Centre for Disease Prevention and Control - epidemiological data

South Africa Influenza surveillance report

New Zealand Public Health Surveillance

Australia Influenza Report

Pan-American Health Organization Influenza Situation Report

FluWatch Definitions for the 2013-2014 Season

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

Influenza-like-illness (ILI): Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

ILI/Influenza outbreaks

- **Schools:** Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.
- **Hospitals and residential institutions:** two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Institutional outbreaks should be reported within 24 hours of identification. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.
- **Workplace:** Greater than 10% absenteeism on any day which is most likely due to ILI.
- **Other settings:** two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. closed communities.

Note that reporting of outbreaks of influenza/ILI from different types of facilities differs between jurisdictions.

Influenza/ILI Activity Levels

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported

2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = Localized: (1) evidence of increased ILI* ;
(2) lab confirmed influenza detection(s);
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region**†

4 = Widespread: (1) evidence of increased ILI*;
(2) lab confirmed influenza detection(s);
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region**†

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

* More than just sporadic as determined by the provincial/territorial epidemiologist.

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.

This report is available on the Public Health Agency website at the following address: http://www.phac-aspc.gc.ca/fluwatch/index.html.

Ce rapport est disponible dans les deux langues officielles.